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CREATING STRATEGIES
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Recommendations for Data Collection and Analysis To Kentucky Dual Credit Task Force

By Jobs for the Future
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Overview

In February 2007, Jobs for the Future completed the first phase of a two-phase project to help the state of Kentucky enhance dual enrollment opportunities for high school students. At the request of the Kentucky Community and Technical College System (KCTCS) and with funding from the Ford Foundation's Bridges to Opportunity Grant, JFF briefed the Dual Credit Task Force about promising state policies—with a focus on dual enrollment financing and eligibility.

This report, also commissioned by KCTCS, is the second phase of JFF's work. It recommends a dual enrollment research plan for the state, addressing the following questions:

- What data and analyses does Kentucky need in order to know whether dual enrollment is meeting state education goals?[1]
- To what extent does the state already collect these data and conduct these analyses? What more is needed?
- What steps can the state take to meet these needs?

To answer these questions, JFF reviewed state documents and Web sites relating to education data collection in Kentucky at the K-12 and postsecondary levels. The research included interviews with state officials overseeing data collection and research in the Department of Education and Council on Postsecondary Education. JFF also drew upon its knowledge of national dual enrollment research and methods to inform the report.

Kentucky's efforts to use dual enrollment as a strategy for improving educational attainment and workforce preparedness are laudable. The Dual Credit Task Force has laid out a vision for dual enrollment as "part of a broad base of educational opportunities that prepare [students] for postsecondary education and success." It has defined expected education benefits for students and the state. Such purposes and goals are preconditions for evaluating whether the state is getting what it wants from dual enrollment and identifying needed changes.

Additionally, the state is collecting *somewhere* much of the data needed to evaluate dual enrollment programs and *could* connect these data to gauge program impact. The Council on Postsecondary Education collects data that can answer important questions about the education trajectory of dual enrollees after high school. The Department of Education is building a unit-record database, with a unique student identifier, that can track the educational progress of public school students through high school graduation.

However, Kentucky currently does not link data across its K-12 and postsecondary systems. Different state agencies are only able to view and report data for their parts of the education pipeline, resulting in an incomplete picture from the state perspective of who participates in dual enrollment and to what end. For example, the Council on Postsecondary Education can iden-

tify dual enrollees and track them through college, but it cannot know whether low-socioeconomic status students with a certain tenth-grade academic background are enrolling in dual credit courses at similar rates as higher-SES peers with similar academic backgrounds. Nor can it know whether dual enrollees with a particular high school academic profile have better high school or postsecondary outcomes than students with a similar profile who never dually enrolled.

Another data gap involves the state's K-12 data systems. The Department of Education is engaged in a major effort to build a comprehensive unit-record database and recently began using common course numbering across the state. Progress on these efforts has been great, but more development and time are needed before substantial data are available. Also, the state does not yet collect student-level course completion information. All of these factors mean that from the perspective of the department, staff cannot consistently identify which of their high school students are dual enrollees.

Fortunately, Kentucky already has many conditions in place to conduct dual enrollment research, it is aware of many of the preceding challenges, and it has a store of good will across its K-12 and postsecondary agencies to overcome them. As the state takes steps to fill data gaps and strengthen linkages across data systems, it should ensure that these agencies are authorized to share data and have the capacity to collect and use data to inform policymaking and practice.

This paper begins with a conceptual framework that can guide a dual enrollment research plan in Kentucky, based on the Task Force's goals for dual enrollment. The paper then describes the types of data that are needed to provide evidence within key areas of the framework and the key research questions that can help guide policymaking. This is followed by a gap analysis, comparing data needs to the state's current data collection. The paper concludes with recommendations, including a discussion of the required analytic capacity and coordination issues that the state must address to carry out research.

Conceptual Framework and Research Questions:

What data and analyses does Kentucky need in order to know whether dual enrollment is meeting state education goals?

A conceptual framework for dual enrollment research should be designed to gauge progress on achieving the state's desired *benefits.* It should be based on data relating to the following questions: *Who are the students? What are their dual enrollment experiences? What are their education outcomes? How do outcomes vary by student background and types of dual enrollment experience?*

Benefits as Defined by the Task Force

The Dual Credit Task Force is considering ways to transform dual enrollment so that it achieves a set of expected benefits (see Table 1). These benefits are expressed as improvements in overall student outcomes and improvements in school practices and institutional relationships. Many of the benefits are best evaluated using quantifiable measures and statistical analyses. Others are better suited to qualitative methods, such as interviews, surveys, or case studies designed to understand processes, experiences, and perceptions. This conceptual framework focuses primarily on quantifiable student benefits to Kentucky resulting from its dual enrollment efforts, as detailed in Table 1.[2]

Appendix I identifies information that the state can share with students and families about their education progress and postsecondary opportunities. One of the Task Force's intended benefits is to provide students with more realistic information about preparing for college and the workforce, and this is an important issue to address now because the state has just initiated its new on-line Individualized Learning Plan.

How do the students and their program experiences vary?

In order to quantify dual enrollment's benefits, research must be able to discern key differences among students and their program experiences. This is especially true in Kentucky because its policies, and the Task Force's vision, leave room for a variety of dual enrollment programs that aim to prepare a broad range of students for college and the workforce. Also, any research that

Table 1. Methods for Evaluating Dual Enrollment's Expected Benefits and the Benefits Addressed by this Report

EXPECTED DUAL ENROLLMENT BENEFIT From Kentucky Dual Credit Task Force Vision Statement, December 2006	METHODS	DETAILED FURTHER IN CONCEPTUAL FRAMEWORK
Students will be better prepared for postsecondary education and training.	Quantitative	Yes
Students will have more realistic information about the academic and non-academic skills they will need to succeed in postsecondary education and training.	Survey data or interviews	No
	State can share information with families using its data capacity and online Individual Learning Plans	Appendix I
All teachers, faculty, administrators, and advisors at the high school and postsecondary levels will gain a deeper understanding of how to prepare students for a successful postsecondary experience.	Survey data or interviews	No
Students who may not consider themselves college-bound will have opportunities to experience success and be motivated to pursue higher education.	Survey data/interviews	No
	Quantitative (assuming the state also means the benefit will extend to students who are currently statistically less likely to be college bound).	Yes
Students will have expanded curricular options to fulfill the goals outlined in their Individual Learning Plans.	Case studies of schools' curricula	No
Curriculum standards and expectations will be aligned P-14.	Case studies (cross sector)	No
Students will be able to obtain a postsecondary degree or certification at lower cost and in less time.	Quantitative	Yes
Institutional relationships between colleges and secondary schools will be established, strengthened and maintained.	Case studies, surveys, interviews	No

gauges a program's impact must control for important similarities and differences between participants and non-participants that might otherwise account for observed outcomes.

For these reasons, the state will need to collect an array of student-level information that will permit analyses to examine variations in who is served, by what kind of program, and to what end during and after high school. Researchers would ask a distinctive set of questions to evaluate whether dual enrollment can educationally reengage students who are at risk of dropping out of high school versus whether it can accelerate already high-achieving students toward a postsecondary credential.

Figure 1 is a framework for collecting the major types of data needed to evaluate whether dual enrollment is resulting in the state's intended benefits. Each of the major categories under the benefits is defined further in subsequent pages.

Figure 1. Basic Conceptual Framework for Dual Enrollment Research

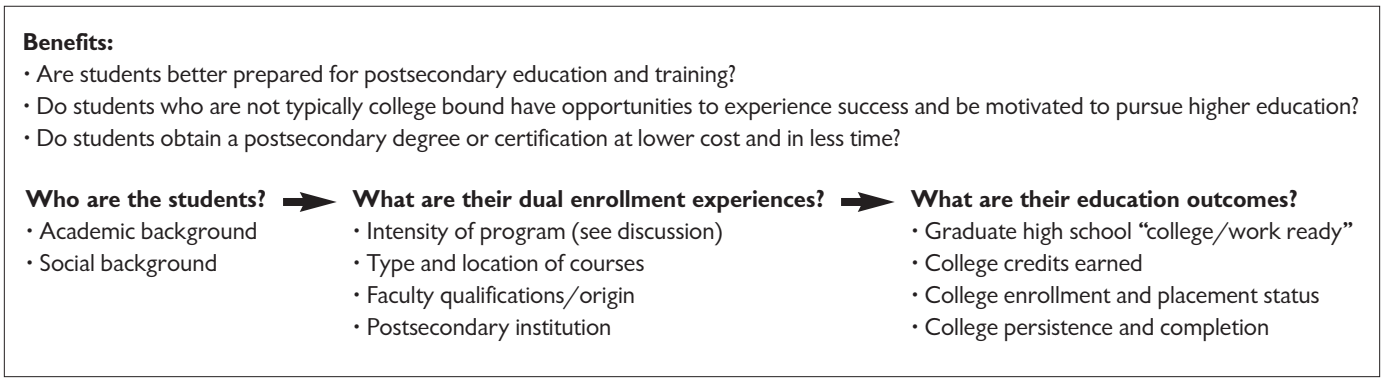


Table 2. Sample Data Elements: Who are the Students?

Social Background:	Academic Background:
• Gender • Race/ethnicity • Date of birth (to determine whether student is under/overage for grade) • Socio-economic status or proxy (free/reduced lunch) • Attends Title I school • Limited English proficiency	• High school GPA (end of ninth grade) • Middle school GPA[4] • High school credits earned by end of ninth grade (predictive of high school graduation) • Discipline history (≥sixth grade) • Attendance rate (≥sixth grade) • Performance on state assessments (ninth and tenth grades) • Dropout status • 8th grade EXPLORE scores from EPAS

Who are the students?

The state will want to know who participates in dual enrollment to understand the program's accessibility and variation in benefits by student group (see Table 2). In particular, the state must collect data about student background characteristics that are predictive of high school graduation and postsecondary attainment. This information will allow it to know whether dual enrollment yields a benefit for students who are statistically underrepresented as high school graduates, graduates ready for college and the workforce (see discussion of outcomes), or earners of postsecondary credentials.

Research has documented the factors related to under-representation in postsecondary education and being at risk of dropping out of high school. Table 2 is not intended to be all-inclusive of these factors but to capture some of the major characteristics that relate to educational attainment.[3] Of course, Kentucky should adapt and adopt specific elements that correspond to state-specific programs or nomenclature (e.g., EPAS).

What are their dual enrollment experiences?

State data should include a student-level, dual enrollment indicator tied to whether a high school student took at least one college course while in high school. This will allow analyses to compare the educational outcomes of dual enrollees with non-dual enrollment students. The state also needs to understand potentially important differences in students' dual enrollment experiences. Based on national research about dual enrollment, important differences are likely to be:

The intensity of the dual enrollment experience: This can be based on the number of college courses a student takes. Another dimension of intensity is coherence in course taking. Are students taking an occasional college course in a smattering of areas? Or are they are enrolled in a special program or school designed to support their progression through a coherent sequence of dual credit courses encompassing much of the school day?[5]

The type of college course: Examples include academic, enrichment, technical-occupational, and those counting toward core requirements of a postsecondary credential. These may have different impacts on postsecondary outcomes. Knowing whether the course was taken on a college or high school campus is also important. Courses on college campuses are more likely to help students build an academic identity as a college student, acclimate to the college environment, and expose them to postsecondary academic expectations.[6]

Faculty qualifications and origin: Is the teacher a high school teacher designated as an adjunct college faculty member or a full-time college instructor? Current research sheds little light on whether this is an important distinction. However, it is important data to collect and analyze because it is a factor that is often scrutinized in relation to the authenticity of college courses. Data on faculty credentials are also important from the standpoint of meeting postsecondary accreditation requirements.

Postsecondary Institution: Just as for regular college students, dual enrollees' experiences may differ depending on the institution offering the college course.

Table 3 lists the types of data, all told, that will be important for the state to collect:

Table 3. Sample Data Elements: What Are Students' Dual Enrollment Experiences?

Intensity: • Dual enrollment indicator • Identification of school-wide or comprehensive program approaches to dual enrollment • Number of college courses taken **Course type & Location:** • College course code • Course location code • Course was dual credit	**Types of Teachers:** • Teacher was adjunct or full-time college faculty • Credential held by teacher **Postsecondary Institution:** • Campus code

What are the educational outcomes of dual enrollees?

One basic, concrete outcome the state must understand is to what degree dual enrollees are succeeding in college-level courses. It will also want to know the number of credits that students accumulate by the end of high school. Beyond this, the Task Force's intended benefits for dual enrollment must be tied to a variety of indicators of student achievement at the high school and postsecondary levels.

The state is already engaged in other efforts to better align high school standards with college and workforce expectations, such as the state's Developmental Education Task Force and the American Diploma Project. Outcome measures relating to college and workforce readiness for dual enrollees should be consistent with those defined from these efforts. Many efforts are still in progress, but it is likely that measures will include some combination of the types of high school courses students successfully complete, their performance on standards-based high school assessments, and their scores on college placement and workforce readiness exams.

To understand whether dual enrollment is related to increased college access, success, and cost-efficiency to degree completion, the state must know whether and where students enroll for postsecondary education, whether they begin in credit-bearing courses, how many credits they are able to transfer upon enrolling, how long they stay in postsecondary, how they perform in their courses, and whether they obtain a degree.

Finally, although it is not explicit in the Task Force's expected benefits, the state is ultimately interested in promoting a more highly skilled workforce through secondary and postsecondary education. Thus, it would be ideal for the state to have some means of gleaning the employment status of its former students. This would be a valuable perspective, for example, in examining benefits for high school graduates who took college-level technical/occupational courses as dual enrollees. JFF's research did not explore Kentucky's employment-related databases and so cannot offer specific recommendations. However, there is a brief discussion in Appendix II of how the state might begin to think about collecting such data, based on the experience of Florida. The Kentucky Community and Technical College System has just started to create similar links as Florida to Kentucky employment data.

Examples of the data needed to evaluate the outcomes of dual enrollees are in Table 4.

Table 4. Sample Data Elements: What Are Dual Enrollees' Educational Outcomes?

Graduate high school "college/work ready" • High school graduation • High school assessment scores • College credits accumulated by graduation • High school courses completed • ACT (i.e. EPAS), SAT, and WorkKeys test results • Receipt of Kentucky Employability Certificate	**College enrollment, placement, persistence, completion** • College enrollment/admissions status • Credits accepted for transfer upon enrollment • College placement test results (including ACT and SAT) • Met or did not meet threshold for state's Mandatory Placement Policy • Courses taken as freshmen and beyond • Course grades and GPA • Degree/credential earned

Reporting on the Data

The collection of the preceding data and the ability to link them at the student level would enable the state to conduct powerful analyses of dual enrollment student and program outcomes. The recommended conceptual framework and data collection are designed to gauge the Task Force's intended benefits. They are broad and flexible to allow for exploration of a great number of research questions that shed light on whether those benefits are being realized.

However, improvements in the state's dual enrollment research capacity are likely to take time and resources, and they should be undertaken with purposeful consideration of the intended results. Thus, it may be helpful for the state to distinguish between short-term and long-term research goals. In the short term, there will be particularly important questions to answer—especially during a period when the state is rethinking its dual enrollment policies. Many of these can be answered with annual reporting of aggregated statistics that provide an overview of the status of dual enrollment in the state. Much of the data needed to do these reports are already available. Over the long term, the state should aim to do research that entails longitudinal analysis of student-level data to glean relationships between variations in student backgrounds, dual enrollment experiences, and education/workforce outcomes. This will require a much higher level of data sharing, coordination, and research capacity.

Short Term: Annual Reporting/Descriptive Research

The following questions can be answered annually to give state leaders a high-level snapshot of dual enrollment participation and impact. Although such analyses are not definitive about program effects, they are informative indicators that can provide direction for more in-depth research in the long-term.

What is the level of dual enrollment participation? Is it growing?

- What number of students is participating?
- How many credits do they earn on average?
- Are there high schools and postsecondary institutions that are offering more or less dual enrollment than average?
- Are there groups of students that participate at disproportionately higher or lower rates (e.g., by SES, ethnicity, average GPA)?

What is the nature of dual enrollment course taking?

- In what areas are students earning credit?
- Are the courses credited as dual credit?
- Where are the courses offered?
- Who teaches the courses?
- How many special programs or schools are there that offer a comprehensive dual enrollment experience? Where are they located?

Do dual enrollees enroll in and complete postsecondary education? Do they do so at higher rates than non-dual enrollees?

- In what institutions do they enroll?
- To what degree do postsecondary institutions accept credits earned through dual enrollment?
- How many remedial courses do dual enrollees take once they enter college?
- Do dual enrollees complete a postsecondary credential? What kinds?
- How do their rates of enrollment, remediation, persistence, and completion compare with non-dual enrollees?[7]
- How long does it take dual enrollees on average to earn a postsecondary credential compared to college enrollees who were not dual enrollees?[8]

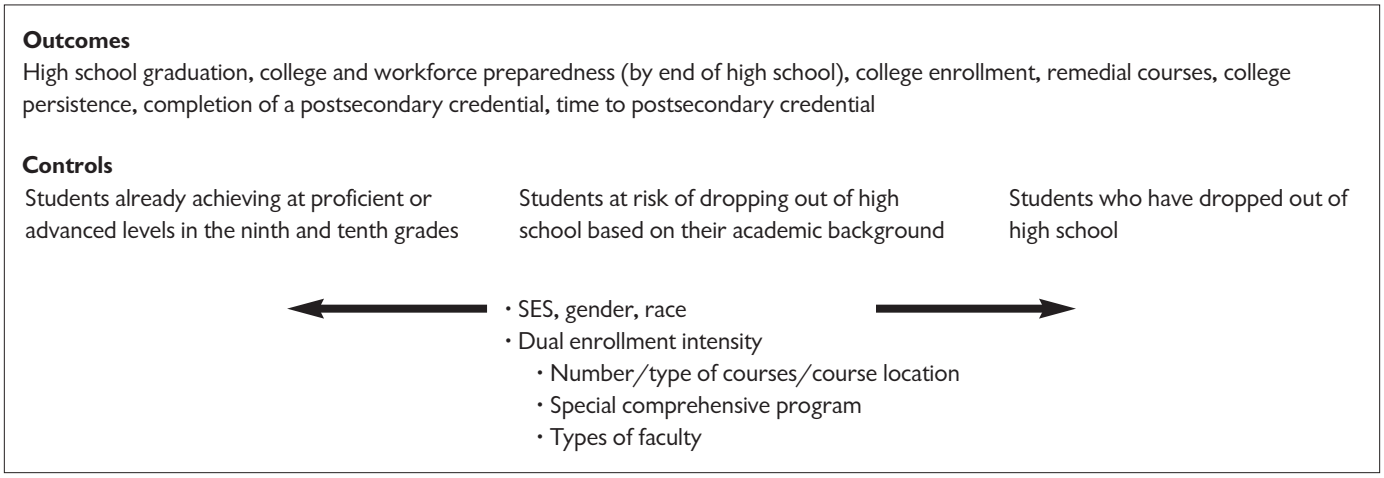
Long Term: Longitudinal Research

To better judge the effects of dual enrollment, research must compare the progress of students who participated versus students who did not. All of the following suggestions for longitudinal analyses assume the use of this basic level of statistical control.

When comparing outcomes, it is also important to examine whether program effects persist or vary by the background characteristics of students and by the type of program experience that participants had. As Kentucky's dual enrollment programs are likely to target different student populations, the state's research might explore the following lines of questioning.

- Is dual enrollment related to increased rates of any of the following: high school graduation, college and workforce readiness (according to high school achievement measures), college enrollment, college persistence, completion of a postsecondary credential? Is it related to decreased remedial course taking or accelerated attainment of a postsecondary credential?
  - Do these effects vary among students who were already achieving at proficient or advanced levels in the ninth and tenth grades?
  - Do these effects vary among students who were at-risk of dropping out of high school based on their academic background?
  - Do these effects vary among students who have dropped out of high school?[9]
- Do any effects for these groups of students vary by SES, gender, or race?
- Do any effects for these groups vary by the intensity of a students' dual enrollment experience?
  - Number, type, and location of courses
  - Special comprehensive program
  - Types of faculty

Figure 2: Longitudinal Research Outcomes and Controls



Assessment of Current Dual Enrollment Research Capacity:

To what extent does the state already collect these data and conduct these analyses? What more is needed?

Between data already collected from districts and that from higher education institutions, the state is currently collecting virtually all of the data elements that are needed to evaluate dual enrollment's intended benefits. The state also will soon have the technical ability to link and track student-level data from K-12 with data collected by the Council on Postsecondary Education by using Social Security Numbers or a statewide student identifier.

However, the state currently does not connect its data systems, although it could. Doing so is a prerequisite for much of the research that the state must do to know whether it is getting the benefits it intends from dual enrollment. Without linking the data, state agencies can only answer questions using data for the grade levels under their purview. The Council on Postsecondary Education knows who dual enrollees are and how they do in college but cannot know how student outcomes vary among dual enrollees with different academic achievement in high school.

There are other gaps. The Council on Postsecondary Education and the Department of Education both collect data indicating whether students were ever dually enrolled, but districts collect and report this information only sporadically and inconsistently to the Department of Education because the state does not require it. Thus, the department cannot consistently know which students are dual enrollees and therefore cannot monitor their high school achievements.

Furthermore, the Department of Education does not collect student-level course completion data, although it recently has begun to standardize the identification of courses. Student-level course data would allow the department to identify dual enrollees while they are in high school and also constitute crucial outcomes for gauging the college- and workforce-readiness of dual enrollees.

Table 5 summarizes the major data gaps that the state must fill to carry out the research plan recommended in this paper.

Table 5. Summary of Data Gaps for Kentucky Dual Enrollment Research

	SIGNIFICANT DATA GAPS
Who are the students?	
• Academic background	The Department of Education cannot consistently identify dual enrollees at the high school level and thus cannot understand their background characteristics or education outcomes while they are in high school. The state can—but does not—link K-12 and postsecondary data systems. Without doing so, it cannot relate information about high school academic characteristics (beyond basic information already collected by postsecondary) to postsecondary outcomes.
• Social background	Because the state does not link K-12 and postsecondary data systems, it also cannot relate information about a dual enrollee's free/reduced lunch status (a prime indicator of poverty) to postsecondary outcomes. There are potentially other ways to glean the SES status of dual enrollees. KCTCS knows whether students receive Pell Grants, and the state could link student records to income data kept by the Kentucky Higher Education Assistance Authority for recipients of financial aid and scholarships. However, linking data to free/reduced lunch status would be optimal, given the other benefits of linking K-12 and postsecondary data.
What are their dual enrollment experiences?	
• Intensity of program	The state has no special code for special, comprehensive programs (e.g., early/middle college high schools).
• Type and location of courses	The state collects college-reported data regarding whether courses were taken for dual credit. However, verification of dual credit at the high school level is spotty, although the state is taking steps to standardize high school course data which should help. The state collects data on whether or not a course was delivered on- or off-campus, but there is no single code for courses offered on a high school campus.
• Faculty qualifications/origin	Courses coded as dual credit by colleges also indicate whether or not a high school teacher was the teacher of record, but there is no information about faculty qualifications or about full-time versus adjunct status.
• Postsecondary institution	No significant gaps
What are their education outcomes?	
• Graduate high school "college/work ready"	The state does not collect student-level graduation data. The state is in the process of defining indicators of college readiness, in part through work such as the Developmental Education Task Force and its participation as part of the American Diploma Project. The state does not collect student-level course completion data and has just begun to standardize course data.
• College credits earned	The state collects information about the hours of credit accepted for transfer but not about the courses accepted for transfer.
• Course grades and GPA	The state has collected college course grades since 2005. However, cumulative college GPA is not available.
• College enrollment and placement status	No significant gaps
• College persistence and completion	No significant gaps

Recommendations for Building Kentucky's Dual Enrollment Research Capacity:

What steps can the state take to meet these needs?

Kentucky is close to having the data systems in place to carry out comprehensive dual enrollment research. It is instituting no improvements in its research capacity, including the development of the Kentucky Instructional Data System (KIDS). In particular, the state's implementation in 2005 of a unique, statewide student identifier in its K-12 databases will enable it to answer important questions that entail tracking individual students over time. The national Data Quality Campaign's 2006 survey and analysis reports that the state has seven of the ten critical data elements needed to gauge K-12 student achievement, many of which are related to areas of the dual enrollment conceptual framework.

Moreover, the personnel interviewed for this research consistently cite good will and cooperation across the state's education sectors. This can serve as the foundation for making the linkages in data to fill the remaining gaps in the state's dual enrollment research capacity.

As the state begins to build on this foundation—in particular, in linking its secondary and postsecondary data systems—it can learn from the experience of other states that have strong capacity for dual enrollment research. Many of the following recommendations are based on Florida's experience in building its education data warehouse and doing dual enrollment research. The state is widely regarded to have the premier P-16 data system in the country that allows it to do powerful analyses of its large dual enrollment program.

The following recommendations are not meant as prescription or panacea. Rather, they are key considerations that can guide Kentucky policymakers in planning strategically for the state's own dual enrollment research. Such a plan entails making choices about priorities, pacing, and resources—all in the context of Kentucky's other educational improvement and research efforts.

Collect Student-Level High School Course Completion Data

The Kentucky Department of Education's recent effort to standardize the identification of courses at the state level is laudable. This should be seen as only the first step toward collecting more comprehensive data about the courses students take and their performance in them—including courses coded for dual credit. Currently, the state does not collect high school course completion data at the student level. Such data are critical to understanding the college readiness of students and would enable tracking of the high school performance of dual enrollees.

Florida has standardized course numbering across its K-16 education system. This allows a state Articulation Coordinating Committee to define and monitor how college courses can be dual credited toward the state's high school graduation requirements and are to be accepted for transfer to public colleges and universities statewide.

Establish a K-16 Data Warehouse

K-12 districts and postsecondary institutions currently submit data to their respective state agencies where the information is stored and reported separately from these "legacy systems." This bodes much better for the prospect of linking data than the alternative: being a state without a strong culture of centralized data collection where individual institutions keep most data to themselves. However, Kentucky must find a way to link its K-12 and postsecondary data.

The optimal way to link data is to create a shared warehouse combining data from several systems. The Department of Education and Council on Postsecondary Education—and perhaps eventually other agencies—would continue to collect data for their respective systems but would periodically transfer designated data into the warehouse. As the Council on Postsecondary Education already collects data for public and independent colleges, its data should provide broad coverage of the higher education institutions offering courses to Kentucky high school students. Each student in the warehouse would have one identification number throughout their education to allow for longitudinal tracking and analyses.

In 2001, Florida created a P-20 data warehouse containing a wide array of linked student-level data, including those from K-12 education, community colleges, four-year colleges, adult career and technical centers, and financial aid and scholarship data-

bases. The warehouse allows the state to conduct longitudinal research about students from the time of their enrollment in public school into the workforce—including questions relating to dual enrollment. Examples of Florida state reports on dual enrollment are attached.

Warehousing is the most efficient and systemic route for sharing data, but it is unlikely to be accomplished overnight. The strategy requires a significant and long-term state commitment. Whether or not the state decides that creating a data warehouse is an immediate priority, there are incremental steps that can lead to more efficient data collection and sharing. These include ensuring that each education sector collects the data needed by the state and hones the consistency of their respective data definitions and reporting among institutions. Improvements in consistency would then facilitate sharing of data across sectors for special joint research projects. Such ad hoc sharing could eventually be made more systemic and permanent through a data warehouse.

Build and Maintain the Will to Collect and Link Data

Any effort to improve the collection and sharing of data for the purposes of evaluation is a major undertaking. It is dependent upon the sustained commitment and resources of leaders and staff from institutions, state agencies, and data departments. All of these stakeholders must understand the importance of engaging in the effort, be committed to coordination, and have incentives to participate.

Upon initiating the process, the state should convene key stakeholders to share goals, anticipate challenges, and communicate why certain data are necessary to collect. Stakeholders must also understand what benefit they will receive in return for sending data to the state. Examples include new access to research they could not do on their own or financial resources to support data collection.

It is also important for the state to hear regularly from those on the ground; districts and colleges can make valuable recommendations for improving statewide data collection. At the same time, the state must be clear in its expectations of these stakeholders for providing timely and high-quality data. In the course of strategic planning, the state should consider if there are any non-negotiable expectations that need to be backed by consequences (e.g., sanctions, funding). Although such tools should be used judiciously, they may be necessary along the way toward building a strong, self-sustaining statewide data culture.

Beyond the initiation phase, ongoing communication with stakeholders remains critical. For example, staff turnover within data departments and at the leadership level can result in the loss of institutional memory about the importance of coordinated efforts or critical technical details. The Department of Education is currently managing, for example, a transition in contractors coordinating the implementation of unique student identifiers—making critical the continuity of vision, goals, and details within the department.

Dedicate Resources to Data Collection, Analysis, and Reporting

State collection of data from local sources requires substantial resources for activities such as technical assistance and verification of data quality. Kentucky already devotes resources to such efforts at the K-12 and postsecondary levels, but it should expect that adding data elements to its systems will entail increased data collection costs.

Data collection is only one aspect of research capacity. State leaders must also organize human resources to develop analyses and reports that promote public accountability and improvements in practice and policy. Legislators and their constituents will want to know what the state is getting in return for any investment made in dual enrollment. Institutions and state education leaders will want to understand how to maximize dual enrollment's benefits.

Staffing at the institutional and state levels—ideally with personnel who are trained in institutional research—is necessary to meet these demands. The state already employs staff at the Department of Education and Council for Postsecondary Education who are available to clean data and conduct program research. If the state makes an increased investment in dual enrollment as a strategy to improve education attainment, it should dedicate an increased proportion of staff resources toward research on dual enrollment.

The Florida Department of Education, overseeing both K-12 and postsecondary education, employs several full-time equivalent employees to do institutional research with dual enrollment being part of their research portfolio. The state publishes an annual report on dual enrollment to the legislature, makes results publicly available on its Web site, and is developing a method of estimating and reporting the state's return-on-investment (ROI) in dual enrollment.

Create Processes that Establish Shared Interests and Sustain Trust

Across K-12 and postsecondary sectors, Kentucky appears to have a culture of trust and amiable working relationships in place. To do the data linking to evaluate dual enrollment, the state will need to formalize these relationships through agreements and protocols. This is important in establishing a legitimate, lawful interest under the Family Education Rights and Privacy Act (FERPA). It is also essential to sustaining the spirit of cooperation needed to share data successfully.

FERPA prohibits the release of individually identifiable information about students without the consent of their families. However, one of the exceptions that allows institutions to disclose data without individual consent is for the purpose of studies "to improve instruction"—a purpose certainly consistent with this proposed dual enrollment research plan.[10] Groups conducting the research must, among other requirements, establish a legitimate educational interest in the data and formalize their relationships for the defined research. Florida provides a model for how multiple agencies and institutions have shared data in compliance with FERPA. Details can be found in the 2005 JFF publication, *State Data Systems and Privacy Concerns: Strategies for Balancing Public Interests* (www.jff.org).

For the sake of legal compliance and for maintaining political good will, processes and protocols must address issues of control and ownership of the data. Institutions and agencies should jointly define and agree to abide by procedures for communicating about the collection, sharing, analysis, and release of analyses based on the data. For example, public announcements of analyses should only occur after the analyses have been shared with partnering agencies.

Conclusion

Kentucky has many of the pieces in place for doing research that can complement its increased interest in supporting and enhancing statewide dual enrollment opportunities: data about students' backgrounds and college outcomes, unique student identifiers at the K-12 and postsecondary levels, and a general sense of cooperation between the K-12 and postsecondary sectors. Although there is a natural fit between these pieces, the state has not yet put them together in a way that would enable students, families, institutions, or state agencies to evaluate or improve the benefits of dual enrollment. Doing so requires a coherent research plan, resources, good will, respect for individual privacy, and respect for mutually defined processes. This report seeks to provide the state with some promising directions along each of these important dimensions.

Appendix I

Sharing Information with Students and Families

One of Kentucky's education goals is to ensure that students and families have "more realistic information about the academic and non-academic skills they will need to succeed in postsecondary education and training." National research suggests that dual enrollment can familiarize high school students with college expectations and can be particularly motivational when college courses are made available to them at no cost or at a discount. The advent of Kentucky's online Individual Learning Plan (ILP) presents an opportunity to capitalize on dual enrollment's motivational potential by encouraging all students to participate in dual enrollment by their senior year. For example:

- Each student's ILP should have as a goal the completion of one or more dual credit courses by high school graduation.
- ILPs should list the academic eligibility criteria that students must meet to qualify for dual enrollment, and they could indicate whether students are already eligible based on ILP data. They could also contain an inventory of non-academic skills (e.g., study habits, seeking help when needed, organizational skills, being on time) that they can anticipate needing or sharpening in their college courses.
- Based on ILP data, counselors should be able to guide ineligible students toward strategies or program options that can help them become eligible for dual enrollment (e.g., special programs or preparatory course sequences). Participation in such options would subsequently be reflected on a student's ILP.
- The ILP could contain information or links regarding where to access dual credit courses, what costs are involved, and what financial support may be available.
- When students complete dual enrollment courses, their ILP could tally the number of college credits they have earned. This would be particularly powerful if the ILP could report which institutions accept the credits for transfer toward a postsecondary credential based upon a statewide *transfer framework* area. The latter would require the ability to match consistent course numbers corresponding to the transfer framework.
- The ILP could incorporate any weighting of dual enrollment in calculating high school GPA.

Appendix II

Researching Effects on Employment

Although it is only implicit in the state's stated dual enrollment benefits, strategies to improve education attainment have an assumed state benefit of a more highly skilled and employable workforce. This appendix briefly discusses what Kentucky could do to improve understanding of how education improvement strategies, like dual enrollment, relate to employment outcomes.

First, a caveat applies to analyzing workforce outcomes: their increased distance from the time of an education program means inferences about program effects should be made cautiously. There are many factors that are likely to overshadow prior program participation—for example, full-time attendance as a regular college student or the health of a region's economy. Thus, outcomes gleaned from workforce databases—such as whether graduates stay in the state or whether and where they are employed—might be most readily viewed as a complement to data about the overall efficacy of the state's education systems rather than as the result of one education intervention. That being said, employment outcomes have particular potential to enrich the state's understanding of how dual enrollees taking technical/occupational courses benefit from their participation.

Linking workforce and education data adds a layer of coordination to research efforts, but it essentially follows the same principles and challenges of data sharing and agency cooperation laid out in this paper. The key technical issue, much as in linking education data across sectors, is the ability to track individuals with a unique identifier. For workforce databases, a person's Social Security Number is the only viable identifier that can be used for these purposes.[11]

According to the Data Quality Campaign, Kentucky's Department of Education has recently begun to include SSNs in student data, and the Council on Postsecondary Education requests this information from institutions. Thus, linking education data to workforce data is technically feasible, if the state chose to invest the resources to do so (as Florida has). KCTCS has begun linking student data to unemployment insurance records, allowing future research to examine the employment status of former students.

Florida's Education and Training Placement Information Program system uses SSNs to link student records with follow-up data held by state and federal agencies, including information on employment, continuing postsecondary education, and military service. Through several interagency agreements, "FETPIP can use linked records to conduct longitudinal analyses that track further education and job placement. The results of follow-up studies are provided to state and local counselors, teachers, education/training policymakers, and elected officials for planning, evaluation, and career guidance purposes."[12] One example of such a report is included in the attachments.

Endnotes

[1] In this report, *dual enrollment* refers broadly to high school students taking postsecondary courses, no matter what credit they receive. *Dual credit* refers to dual enrollment course taking that results in both high school and college credit.

[2] In the future, the state may want to follow up its quantitative research with qualitative research that can help reveal the reasons for key statistical relationships (e.g., how dual enrollment influences the academic identity and post-high school plans of students from particular family backgrounds).

[3] See, for example, Jerald, Craig. (2006). *Identifying Potential Dropouts: Key Lessons for Building an Early Warning Data System. A Dual Agenda of High Standards and High Graduation Rates*. Washington, DC: Achieve, Inc. and Boston: Jobs for the Future. Also see, Goldberger, Susan. (Forthcoming). "Double the Numbers: Quantifying What It Will Really Take." In *Minding the Gap*. Eds. N. Hoffman, J. Vargas, A. Venezia, and M. Miller. Cambridge: Harvard Education Press.

[4] Using GPA in analyses should be done cautiously because it is difficult to judge the comparability of grades across schools or classrooms. Nevertheless, GPA is an important part of a student's academic profile.

[5] Bailey, Thomas, and Melinda Mechur Karp, (2003). *Promoting College Access and Success: A Review of Credit-Based Transition Programs.* Washington, DC: U.S. Department of Education, Office of Adult and Vocational Education.

[6] American Youth Policy Forum. (2006): *The College Ladder: Linking Secondary and Postsecondary Education for Success for All Students.* Washington, DC: Author.

[7] The state may also be interested in analyses about whether dual enrollees participate in, and benefit from, other programs or curricula with similar goals (e.g., Gear Up, TRIO, college-preparatory sequence completers), if such data are available.

[8] Analyses about time to degree completion, and related costs, will require more time to conduct because they require a sufficient amount of long-term outcome data (also see next section on longitudinal research). An example of time-to-degree research using Florida data can be found in Prescott, Brian. (2006). *Follow the Students*. From *Accelerated Learning Options: Moving the Needle on Access and Success*. Report by the Western Interstate Commission for Higher Education.

[9] Admittedly, it may be quite difficult to find a control group to do a comparative analysis for this group. By definition, dropouts leave the education system, making them difficult to track unless they reenter. Nationally, however, a surprising number of former dropouts who get a GED subsequently enroll in postsecondary education. Thus, it may be possible for the state to track such students if they reenter a state postsecondary institution.

[10] This exception is allowed if the "study is conducted in a manner that does not permit identification of students by individuals other than representatives of the research organization and the information is destroyed when no longer needed for the study. Florida has successfully argued that longitudinal research following students over time requires keeping records for many years so that further education and employment outcomes can be tracked and the impact of different programmatic experiences can be assessed." (Mills, J. (2005). *State Data Systems and Privacy Concerns: Strategies for Balancing Public Interests. An Achieving the Dream Policy Brief.* Boston: Jobs for the Future.)

[11] Even more than other identifiable information, SSNs carry heightened concerns and stakes for the state regarding the protection of individual privacy.

[12] Mills, J. (2005). *State Data Systems and Privacy Concerns: Strategies for Balancing Public Interests. An Achieving the Dream Policy Brief.* Boston: Jobs for the Future.

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